

Edgar F. Cuyler

A GYMNASTIC
NOMENCLATURE

BY

E. H. Arnold, M. D.

Director New Haven Normal School of Gymnastics.

Part I.

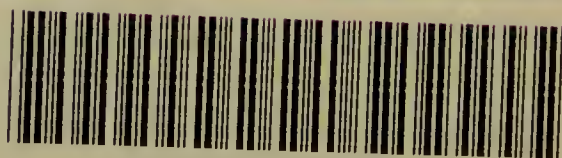
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P R E F A C E.

The attempt of a gymnastic nomenclature presented in the following pages is a collection of articles contributed by me in the course of several years to "Mind and Body."

The attempt is not at all "grey theory" but the evolution of a practical terminology by daily use on the floor of my gymnasium.

It is my intention to continue the series in one of the magazines devoted to physical training, considering the nomenclature of free gymnastics with hand apparatus next, as my time will permit.

Meanwhile I should be extremely glad if the work, as far as published, would give rise to lively discussion and criticism.

New Haven, Conn., December, 1906.

E. H. ARNOLD.



GYMNASTIC NOMENCLATURE seems to many workers in the field of physical training to be of secondary importance only, a mere technicality. Beneficial exercise may be indulged in, no matter what name it may bear. To be sure, a uniform set of terms is desirable even if its only use were to facilitate exchange of thought among the profession. In that case the terms could be arranged according to the principles used in the construction of the nomenclature of other sciences or arts, for instance, the nomenclature of chemistry. The terms of such a nomenclature can be arbitrarily chosen, the original meaning of the word is of little or no consequence, because when it is used in connection with the science or art, in the nomenclature of which it is made use of, it conveys a new, distinct idea because it belongs to a distinct and peculiar set of words. Such a scheme is not only permissible but altogether necessary in all new arts and sciences, for here the discoveries and inventions make new terms for new ideas necessary. Before certain facts in electricity were known, an Ohm or Volt were unknown. When these facts had been worked out the necessity for a term to cover the fact presented itself. This demand can be satisfied in one of two ways. By combining two or more words of a meaning somewhat akin to the new idea, a suitable new word can in some languages be constructed. That is certainly the more desirable of the two ways. It is, however, not always open. Some languages have lost the possibility of such combinations. The idea may be without a parallel, absolutely new, so that kindred words would not be available. It may be important that the term should become an international one, when it is usually more expedient to chose the second mode of supplying the demand, namely to give a new meaning to an old word, the original meaning of which had no relation at all to the new idea.

In connection with the construction of a gymnastic nomenclature the question arises, Have we to deal with a new science or art?

The art of moving is certainly a very old one. Terms for all the movements possible to man are, therefore, found in all languages, even the very primitive ones. That is certainly true of the movements of the body as a whole or its parts as far as they are performed without the help of apparatus.

It is likewise true of the movements performed with certain instruments and implements used either in pursuance of warlike or peaceful occupations.

Terms for sword play are not wanting in any language, the wielding of the hammer has produced a multitude of terms. To a certain

extent it holds good of the movements of the body as a whole or in part, performed on other bodies animate or inanimate. The terms used in horsemanship may well illustrate the first instance, those in rowing and sailing the other.

It appears therefore as if almost any language would furnish well established and, therefore, generally understood terms for a gymnastic nomenclature, when gymnastics are considered as an art. For, tactics, free gymnastics without and with hand apparatus, and exercises on apparatus will correspond to the above mentioned classes of movements on the one hand, and on the other all gymnastic movements may ultimately be classified as being either free gymnastics without or with hand apparatus, or then exercises on apparatus. This being the case, the necessity of coining new words, of giving old words having no relation to the movements of the human body a gymnastic meaning does not present itself. If therefore arbitrary terms are used in gymnastic nomenclature, their use can only be explained by an insufficient knowledge of language or the desire to appear scientific at any price.

Having considered gymnastics as an art we must now listen to its claim as a science. As such it is certainly entitled to a scientific nomenclature as much as any other science.

Admitting this claim we ask once more: "Are new and arbitrary terms necessary?" As far as I am aware physical training has presented few if any new facts independent of other sciences. We can, therefore, make use in scientific gymnastics of the nomenclature of the auxiliary and allied sciences, such as anatomy, physiology, psychology, physics, etc., which relieves us of the task of constructing a specifically gymnastic set of terms.

If, in order to further gymnastics, it were desirable to have an international set of terms, the claims for a purely gymnastic nomenclature, constructed according to the second mode, would be in a measure justified. The necessity for international understanding would have to be proven first. But even if it were proven we should have to recall the fact that translations in matters relating to gymnastic science is rather easy because all languages possess the term for the movements themselves, and for the auxiliary sciences practically international nomenclatures are already in existence.

I consider, therefore, the construction of a gymnastic nomenclature, even it were to serve only the profession for the communication of thought, a matter of English philology pure and simple.

The subject of rational nomenclature assumes much greater importance when the nomenclature is to be used not for communication between members of the profession but for purposes of actual teaching. If physical training is to be of any consequence in an educational scheme it must become an integral part of the curriculum of the different institutions of learning. Only if the beneficial effects of gymnastics become apparent to the pupils, their parents or guardians, and to the rest of the teaching force as well as to the special teacher, who a great many times sees results because he wants to see them and not because they are actually present, can we ever expect to see gymnastics become

a feature in educational institutions. One of the objects of education is the development of the faculties of expression. The main one of these is speech. Language training, therefore, takes a foremost place in all education. The demand that a lesson in any branch of study must be a language lesson also, has long ago been formulated and is generally accepted, though not always lived up to. If its observance has been neglected in one branch more than in another that branch in my opinion is physical training. Most of the teachers of gymnastics have been specialists from the outset. They know little of the necessities and opportunities of common schools. They and their special branch enter a school system as strangers and unless the teacher be wide awake and adapt himself and his work to the circumstances of the school they make their exit as strangers. Such specialists often undo the work of the regular teachers in more than one respect and must not wonder that, with all the physical benefit of gymnastics clearly demonstrated to teachers and school authorities, neither has much use for gymnastics and the gymnastic teacher. That special teachers are bad disciplinarians is a complaint often made by regular class room teachers. In this respect gymnastic teachers should be at least no worse than other special teachers. They should be, and I am persuaded they are, better disciplinarians than other specialists. Their work being done to a great extent by command and being usually interesting, makes discipline a comparatively easy matter with them.

When it comes to their making their lesson in gymnastics a lesson in language, then I must confess that in most cases it would be far better that the lesson had never been given. It would appear as if they all were bad grammarians, or then wilfully disregarded the rules of grammar. There is no reason why the gymnastic teacher should make an exception from the rule above cited.

There is every reason why he should be more careful than any other teacher to adhere as closely as possible to it.

The formation as well as the production of thought is intimately connected with muscular activity. The formal teaching of mechanically and logically correct movements must have an important influence on the formation, reproduction and, of course, expression of thought. If now be associated with such a movement, be it ever so correct, a command which is a faulty word-picture and is illogically constructed, the pupil must become confused, his sense of language perverted. There is no excuse for such condition of things.

The majority of people have need of being helped to a better expression of their thoughts by speech. Quite as many need a better understanding of language, written or spoken. Having for years taught pupils ranging in age from six to sixty years and in education from the beginner in formal education, as found in the lowest primary school grade, to students of professional schools possessing a college education, it seems to me that while during the usual course of education all people increase their vocabulary, only a few gain a proportionate, discriminating command (active and passive) of language. I find that the unprejudiced six year old interprets correct commands in proportion

better than the more advanced pupil. Indiscriminate action follows the same kind of command much the more frequently in proportion the more advanced the pupil is in general education. This relative loss in command of language seems to be a more or less unavoidable result of our present scheme of general education.

It is my opinion that physical training should be instrumental in removing this short-coming of general education, rather than to increase it. By examples of commands taken from several nomenclatures, that I have chosen as typical, for purposes of illustration I shall attempt to show in how far physical training can be said to operate one way or the other.

Commands must take that form of words which is complete in itself, *i. e.*, the sentence. The purpose of the command is the performance of some bodily movements by some persons then under command.

The person or persons commanded must form the subject of our sentence, the activity commanded the predicate.

The subject of a sentence must be a noun or any part of speech which can stand as a noun. We, having to deal with persons, have the choice only of calling the person or persons commanded by name, or to substitute a personal pronoun for their name.

If we address ourselves to one single individual only, he or she being at the time the only one under command, there is no necessity to single out the individual by name or pronoun. Likewise is there no necessity for having a group of persons, all of whom are, without exception, under command, called by their collective name. The use of the names: class, squad, company, etc., is, therefore, under such circumstances not necessary in commands. Neither is it desirable to use these terms. They lengthen the command and give as preparatory commands an unduly long time for thinking, preventing thereby quick thinking. If we wish our command to apply to one or more individuals who are a part of a class under command they must be named specifically in the command. If a movement can be executed by certain individuals only, as is the case frequently in tactics, there is no need of naming them in the command. If a movement can be executed by different individuals or tactic bodies under command at the time, the tactic body is not named if the movement is typical of it.

The tactic body must be named if the movement to be performed is not typical for the body in question. A noun once given to an individual, a group of individuals or tactic body must be the same as long as the relation of the individuals composing the tactic body is the same.

RULES.

1. Commands must be in the form of sentences.
2. The subject of the sentence must be the name of an individual or a group of individuals or a pronoun.
3. If one individual only is under command or if the command is to apply to all present the person or group of persons need not be named.
4. If, in commanding a tactic movement which can be executed by different tactic bodies, the subject is not named, the movement is to be executed by the body of whom the movement is typical. If the movement of the tactic body is a derived one the tactic body must be named.
5. All individuals or tactic bodies are called by one name only.

EXAMPLES.

- Ad rule 1. *Column angle march left—march!*
“ “ 2. *The right guide one step forward—march! The line a quarter wheel left—march!*
“ “ 3. *Forward—march!* (May apply to one individual, a rank, a line, a column, and to the files.
“ “ 4. *A quarter wheel left—march!* (Applies to the rank or ranks because wheeling is a movement typical of the rank.) But: *The column angle march left! the line a quarter wheel left—march!* (These movements are derived from the same movements of the rank.)
“ “ 5. Given a front rank. *Forward—march! Left—face! Angle march, left—march! Halt!* (Do not say, *file left—march,* or *column—halt!* as you have to deal with a rank all the time.
-

Our commands have to be in the form of a sentence. Every sentence has a predicate. In our case the predicate asserts an action to be performed by the subject. The class of words which language has set apart to represent action is called verbs. Clearly then, as we wish to have bodily activities performed as the result of our commands, the predicate of our sentence must be a verb. The predicate in our commands represents the subject of acting, it must, therefore, be an active predicate, an active verb. Verbs are transitive and intransitive in nature. In gymnastic commands use is made of both classes. A transitive verb is limited by an object. If we wish to command a movement which can be executed by more than one part of our body, then the action must be limited to the part desired, our verb must be a transitive one. If the activity is one of the whole body no such limitation is necessary, an intransitive verb should be used. Likewise is the limitation of the verb by means of an object unnecessary if the activity of a part of the body is peculiar to such part, and intransitive verbs should be used in such cases. Verbs allowing of use as transitive and intransitive verbs should be used as either and with or without a limiting object as circumstances acquire and according to the rules that follow:

RULES.

1. The activity commanded must be represented by a verb.
2. Actions not peculiar to a part of the body should be represented by a transitive verb (with a limiting object).
3. Movements of the body as a whole or such as are peculiar to a part must be represented by an intransitive verb (without a limiting object).

EXAMPLES.

- Ad rule 1. In position—*stand!* not: Position!
“ “ 2. Arms forward—*raisé!* not: Arms front! Arms sideward—*raise!* not: Arms out!
“ “ 3. Left forward—*lunge!* not: lunge the left foot forward! Left sideward—*charge!* not charge the left foot sideward (if the terms lunge or “charge” be used at all) Forward—run: Halt!
-

Having determined that the action to be commanded must be represented by a verb, and the kind of verb to use, we must now settle upon the form of the verb that has to be employed. There can not be the slightest doubt, but that the imperative must be used. In the

imperative sentence the request or command may be meant either for the present or for future time. This suits the established usage of giving the command either so that the verb is the executory part of it, or that, the verb preceding, action is deferred till an executory command, for instance, one of the numerals "One," etc., is uttered. One finds in the various nomenclatures the infinitive, the present and the past participle made use of. This is of course wrong, for the infinitive represents the action as unrelated to any subject or time, the present participle declares the action to be in progress, while the past participle represents it as completed. Neither of these representations suits the needs of our occasion, for we wish to have the action, which is not in progress nor completed, begin immediately or in the very near future.

RULE.—1. The verb of the command must be in the imperative mood.
EXAMPLES: Heels—*raise!* not: Heel raising—one!

From our consideration of the predicate in our sentence we have gleaned the fact that some of the verbs whose action is not limited to one part must be limited by a part of the sentence (in our case a substantive) expressing that on which the action expressed by the verb is exerted. This part of the sentence is called the object. In free gymnastics the object must be represented by a substantive denoting a part of the body as the action of our verbs is exerted on these. The parts of the body are the head, the arms, the trunk, the legs. The movements of the head include those of the neck. Among the movements of the upper extremity we have to distinguish movements of the arm as a whole, or of the following parts: the lower arm, the hand, the fingers. Movements of the lower extremity are subdivided in those of the leg as a whole, in movements of the lower leg, and of the foot. If more than one subdivision of an extremity partake in the movement we may elect to name the joint into the formation of which they enter as affected by the activity of the verb, for instance: Knees—bend! Even in free gymnastics with hand apparatus we name, whenever possible, as the object the part of the body rather than the hand apparatus. We thereby simplify our nomenclature greatly. A raising forward of the arms is the same whether the hand has grasped wand, dumbbell, club, or ring. The movements can be much more accurately described by naming the part of the body, and not the hand apparatus that is used. In some instances this is the only practical method, in as much as it is well nigh impossible to describe accurately the more complicated movements of wand or clubs. To invent special technical terms for such movements is against the intent to make our gymnastic nomenclature one that can be understood by everybody, and one that will admit of use in every language.

RULES.

1. The object in our (command) sentence is a substantive denoting the part of the body moved or a joint in which the movement (principally) takes place.
2. This rule is adhered to as far as possible in the case of free gymnastics with hand apparatus.

EXAMPLES.

Ad rule 1. Head forward—lower!

“ “ 2. Arms forward—raise! (Not raise arms forward, raise the bells forward, raise the wand forward, etc.)

Even if we have limited the action of the verb used in our command to one part, as for instance the head, or if the action, being one peculiar to one part, or the body as a whole, need no limitation by the use of an object, we may find the action insufficiently described by our verb. This is the case if the activity named is possible in different directions or in different degrees. Rather than use different terms (verbs) for the different degrees of the same activity, which would make our nomenclature unnecessarily bulky, we shall always call the activity by the same name and signify its direction or degree by adverbs, *i. e.* words, parts of speech joined to verbs for the purpose of limiting the signification of verbs. We may make use of the following classes of adverbs, viz: adverbs of place and motion, of time and succession, of measure and degree. Leaving those of time and succession out of our consideration for the present, we need pay attention to the first class only, for, as we shall see later on, in most cases the adverb signifying directions limits at the same time the verb as to the degree of activity. A few words then about the adverbs of motion, which we use to indicate the direction of a movement. Movements of the body as a whole or any of its parts may take place in vertical and horizontal planes, in oblique ones, or may go from one into the other. The vertical planes in which we mainly move are antero-posterior, lateral ones, and the oblique ones lying between these. Horizontal planes are situated at different heights. Movements in these planes may tend in different directions and we must seek to establish terms for the main directions.

Before determining the directions, let us settle upon a common term for all adverbs of direction which we shall use in our nomenclature. I propose that the suffix “ward” shall be used for all such adverbs. This Anglo-Saxon suffix indicates direction to or from a point. To be sure, the suffix “wise” also means to point into a direction, while “ways” is identical with “wise.” There is this difference between “ward” and “wise” that the former can be used to indicate all directions while both “wise” and “ways” are not generally used to form words indicating all directions. We may, for instance, say forward, sideward, backward, upward, downward, with “ways” we could get frontways, sideways, rearways and the same with “wise,” while movements “upwise or downways” are quite out of the question.

We shall have use nevertheless for the adverbs of location ending in “wise” in the gymnastic nomenclature of exercises on apparatus. We shall use them to signify established relations rather than movements. In justification of such discriminating use of the adverbs ending in “ward” and in “wise” (“ways” being a bad form of “wise”), a word as to the derivation of both suffixes may not be out of place.

The English suffix “ward” as well as the corresponding German one used in the identical manner “wärts” are derived from the Latin “ver-

tere", to turn. "To turn" is a verb with an active meaning, one always turns into a new direction, one cannot turn without activity, the word "vertere" and its German and English derivatives "wärts" and "ward" breathe movement so to speak.

The use of the adverbs ending in "ward" to limit movements to a certain (new) direction seems to me, therefore, peculiarly and happily appropriate.

The propriety of the use of these terms in the manner indicated is enhanced by the fact that nearly all the movements of parts of the body, such as free gymnastic movements, are turning movements in hinge joints and even in other joints, movements around a pivot, circular, *i. e.*, turning.

We shall, therefore, settle upon it that all adverbs indicating movements in a direction shall end in the suffix "ward."

Wise comes from the German word "weisen", to point. The verbs "weisen" and "to point" may have active meaning inasmuch as one may point into a new direction, they may, however, have a passive meaning signifying the state of being permanently directed into a direction. It is for this later quality and meaning that we shall choose the adverbs ending in "wise" to signify our established relation between our body and gymnastic apparatus, *i. e.*, a bodily relation rather than a movement.

Now to the establishment of the main directions. If a motion take place in a vertical or horizontal plane, directed from the rear of the body to its front, it is called gymnastically "forward," if from the front to the rear, "backward," if directed from one side to the other, "sideward."

Sideward movements may, of course, be directed sideward right or sideward left. As the terms left and right mean sideward left or right as a matter of necessity, it is really a pleonasmus to say sideward right and sideward left. We shall, therefore, use the adverbs "right" and "left," they being sufficient as well as short. In the case of the upper and lower extremities we may assume one arm (leg) to be situated on the left (right) side of the body, to be directed towards that side so to speak.

A lifting of the left arm in the direction sideward left is practically a lifting of the left arm in its own direction. The term sideward need, therefore, not be limited by the adverb left, and we may say "Left arm sideward—raise!" rather than use the form "Left arm left—raise!", which form, though correct, is rather awkward. When both arms (legs) are raised, each one in its own direction, *i. e.*, the left to the left, the right to the right, the combined movement being neither left nor right, but both, the term sideward should simply be used as comprising without limitation both directions and we should say, "Arms sideward—raise!" If it proceed in a vertical plane from the feet to the head it is called "upward," if from the head to the feet, "downward." I have purposely said the movement is called so gymnastically, for the gymnastic term may not be in accordance with the geographic one. To be sure, forward, backward and sideward are directions that are established only with regard to our body, and they are, therefore, stationary terms, no matter what relation our body has to the earth, that is to say,

whether we sit, are lying down, or standing on feet or head, will not affect the use of these terms. It is different with upward and downward. It is easily seen that when we stand on our feet the gymnastic up and down will coincide with the geographic one. When we stand on our head, up and down according to the above rule would be diametrically opposed to the geographic idea of up and down. Yet were we to yield to the geographic term all our up and downward movements would have two direction terms according to the position the body holds when they are performed. As this would be perplexing and enlarge the number of terms we shall name movements of the body as a whole according to the geographic idea of up and downward. Movements of parts of the body will be called according to the gymnastic idea, *i. e.*, upward, if in the direction of the head, downward, if in the direction of the feet. This will simplify our nomenclature for free gymnastics very much.

RULES.

1. Directions and degrees of gymnastic activity are indicated by adverbs.
2. All adverbs indicating directions of a movement end in "ward." Adverbs signifying positions end in "wise" (ways).
3. The main directions are forward, sideward, backward, upward, downward.
4. Forward, backward, sideward are always and under all conditions the same.
5. If the body moves as a whole it moves upward when it moves away from the center of the earth, downward if toward it, the relative position of the body toward the center of the earth is not considered.
6. If parts of the body are moved, "upward" is a movement directed from the feet to the head, "downward" the reverse. The relative position of the body as a whole to the earth is not considered.

EXAMPLES.

- Ad rule 1. Arms forward—raise! Arms upward—raise! Arms sideward—raise!
Not: Reach position—arms front! Cross position—arms out! Stretch position—arms up!
- " " 2. Arms sideward—raise! Not: Arms—out! Arms—side! Arms raise—side! Arm sidewise—raise! Arms sideways—raise! But: A stand frontwise. A rest rearwise. Hang-lying sidewise.
- " " 3. The gymnast is lying on the back, face to the ceiling, on the floor of the gymnasium; we wish him to raise the arms into a vertical position, pointing toward the ceiling. Command: Arms forward—raise!
Not: Arms upward—raise!
- " " 4. The gymnast climbs, with head pointing upward to the ceiling, up on a pole, he then turns a half turn around some broad axis, and with head pointing toward the floor climbs down the pole. Commands (for the climbing): Upward—climb! Downward—climb!
- " " 5. The gymnast stands with feet on the floor, head pointing toward the ceiling; we wish him to move the arms into a vertical position along the head. Command: Arms fore-upward—raise! He hangs by knees from a horizontal bar with head pointing toward the floor; we wish him to move the arms into a vertical position alongside the head. Command: Arms fore-upward—raise! (Geographically they have been lowered fore-downward!)



In the preceding paragraphs we have considered the commands as sentences and determined from a grammatical standpoint the different component parts of the sentence, namely the subject, predicated object, adjective limiting the subject or object and the adverb limiting the

verb. We have also determined the words to be used as subjects, as objects and as adverbs in free gymnastics. It remains now for us to select the verbs designating the activities of the body. We shall consider them in free gymnastics only, they being fundamental. The question as to the choice of terms in general arises. Are we going to name the movements anatomically? Before answering this question let us see what movements are possible anatomically considered. According to Gray the movements permitted in joints are "gliding, angular movements, rotation, and circumduction." These movements are often more or less combined in the various joints and produce an infinite variety. This is the first obstacle to the use of anatomical terms. In order to name these combination movements by anatomical terms several words are needed to describe the movements. This will make our nomenclature bulky. The anatomical terms for movements are few, to accurately describe combined movements by them would produce the occurrence of the same term in movements which, from any but the anatomical point of view, seem totally different. This would cause no end of confusion. The anatomical terms are gliding, flexion and extension (angular movements forward and backward), adduction and abduction (angular movements from side to side), circumduction and rotation, that is to say, seven terms in all to describe an infinite variety of movements with. That is an insufficient number. Another objection to their use is their derivation from Latin. That makes them foreign to the understanding of the average adult of ordinary education, but absolutely unintelligible to the pupils in the lower grades of common schools. The use of anatomical terms would be further confusing to the lay mind because it would name with the same term movements which the popular idea would designate as opposite in form, while it would call by opposite terms what commonly would be believed to be the same form. It would finally apply its terms to movements which in common usage are not thought as having any possible connection with that type of movement. If, for instance, the right leg be lifted toward the right it would be anatomically abducted; if it were lifted to the left it would be adducted. If we lift it forward it would be flexed, while lifting it backward would be extending it. Never will the average adult, much less a child, retain these terms. For all these reasons the idea of using anatomical terms in gymnastic nomenclature must once and for all time be dropped. We shall substitute common English terms, having mechanical significance and being as much as possible of Teutonic origin.

What are then the movements of the parts of the body?

In the first place we have,

RAISING.

A part of the body is being raised if it is being lifted or brought up bodily in space, if it is being moved to a higher place.

The condition is that the part be lifted bodily, as a whole, without changing markedly the relation of its subdivisions, if there be any.

What parts of the body may be raised? Plainly those that are pendant in the usual upright position of the body. That is to say, the arms and the legs.

The arms are raised forward, sideward (left and right) and backward. The latter movement is limited in degree. Not so the raising forward or sideward. The movements may be continued upward. We are here seemingly confronted with the necessity of limiting the movement by some word designating the degree. Seemingly only, for on closer inspection it will be seen that the words forward or sideward indicate the degree of the same movement at the same time that they designate the direction of the movement, its degree, direction.

It is apparent that only when the arm is so raised that it is at a right angle with the body, every part and parcel of it is as far forward as possibly can be. Any angle larger or smaller than a right one brings any given point on the arm closer to the body than it is possible to bring it. Taking the form forward then not as the positive nor comparative, but as the superlative, it asks that each point on the arm be brought to the most forward position possible, which is, as above shown, the position at a right angle to the body. It follows, therefore, that forward as well as sideward designate the degree as well as the direction, making the addition of any other word, indicating degree, superfluous. The same reasoning holds good for upward and downward. If the arm is raised forward (*i. e.*, to a right angle with the body), the body standing fairly vertical, it follows that the arm is horizontal, that it is shoulder-high. If both arms be raised forward it follows from the foregoing reasoning that they must be equally high. If two lines emanate from two different points of the body and run in the same direction, they must be parallel. If the arms are raised forward they must necessarily be parallel. This shows how the term forward is practically all-comprising, how it makes unnecessary any addition to our command in order to get the mentioned detail in position. Similar reasoning will fix the arms at the command "sideward raise" at right angles to the body, shoulder-high and in a straight line one with the other.

Whether we raise the arms sideward or forward the movement may be continued upward. For the same reasons that determined the position of the arm when the term forward was used, we now find that the term upward makes it mandatory that the arm be brought to a vertical position, in a straight line with the rest of the body, at two right angles with its own former position, if both arms are raised they must once more be parallel. The commands are (for example): "Arms fore-upward—raise!" or if the contraction of the two abverbs seem inadvisable, "Left arm sideward-upward—raise!"

The oblique directions are situated between the main ones above mentioned. In selecting terms for these oblique directions we shall be best served and avoid confusion if we shall name the fact of the obliquity of the directions and name the two main directions between which our oblique one is situated. It will be best to illustrate by a concrete example and we shall choose the various degrees of arm rais-

ing as a type. The arms are situated vertically downward by the side of the body. From here the following kinds of arm raising in an antero-posterior plane may be practiced:

- 1) Arms obliquely fore-downward—raise! (A movement of 35 degrees.)
- 2) Arms forward—raise! (90 degrees.)
- 2) Arms obliquely fore-upward—raise! (135 degrees.)
- 4) Arms fore-upward—raise! (180 degrees.)
- 5) Arms backward—raise! (Limit of possibility of movement about 35 degrees.)

Admitting the theoretical possibility of arm backward raising in all degrees we should have:

- a. Arms obliquely back-downward—raise! (35 degrees.)
- b. Arms backward—raise! (90 degrees.)
- c. Arms obliquely back-upward—raise! (135 degrees.)
- d. Arms back-upward—raise! (180 degrees.)

In the lateral plane we should have from the same starting position the following exercises and terms:

- 1) Arms obliquely left-downward—raise! (35 degrees.)
- 2) Arms left—raise! (90 degrees.)
- 3) Arms obliquely left-upward—raise! (135 degrees.)
- 4) Arms left-upward—raise! (180 degrees.)

If we substitute right for left we have the movements of the same type on the other side of the body and thereby complete the circle once more. It is to be noticed that the term obliquely fore-downward corresponds in this scheme to the term obliquely left-downward.

The oblique directions in a horizontal plane we shall try to exemplify by a leg movement, such as foot placing, for these are possible practically through a complete circle. We have here:

- 1) Left foot forward—place!
- 2) Left foot obliquely left-forward—place!
- 3) Left foot left—place! (left foot sideward—place!)
- 4) Left foot obliquely left-backward—place!
- 5) Left foot backward—place!
- 6) Left foot obliquely right backward—place!
- 7) Left foot right—place! (theoretical possibility assumed.)
- 8) Left foot obliquely right-forward—place!

There remains now to name those directions that show obliquity not only in a vertical but in a horizontal plane as well. We apply the same principle as for naming the oblique directions that are oblique in one plane only, that is to say, we name the main directions between which they are lying. We have, therefore, to add to the arm raisings given above the ones to follow:

- 1) Left arm obliquely left-fore-downward—raise!
- 2) Left arm obliquely left-fore-upward—raise!
- 3) Left arm obliquely left-back-downward—raise!
- 4) Left arm obliquely left-back-upward—raise!

The corresponding terms are used for the right side.

The legs may be raised. Raising may be done forward, sideward (left and right), and backward. All these movements are self-limited.

LOWERING.

To cause to descend, to bring down, is lowering. Parts which have been previously raised can, of course, be lowered. As we have seen that the arms and legs may be raised it follows, that having been raised, they may be lowered. They may be lowered in the same degree as the preceding raising. In such a case the counter-command is simply "Lower!" The lowering may, however, differ in degree from the raising when the degree of the lowering that is desired will have to be named in the command. For instance, "Arms fore-upward—raise! "Lower!" (The arms are lowered fore-downward), but, "Arms fore-upward—raise!" "Forward—lower!" (The arms are brought horizontally forward.) If the arms have been raised from a vertical to a horizontal position lowering can be done only through the same plane if no other exercise intervene, as the direction of the lowering is, therefore, just opposite to the raising, and as there is no other possibility the direction need not be named. The adverb of direction is under these circumstances used only to denote a degree of lowering different from that of the previous raising. If the arms are raised fore- or side-upward there are two possibilities of lowering as regards direction. They may be lowered fore- or sideward. If the lowering is to proceed in the same plane as the raising no mention is made of the direction. If, however, the lowering is to occur in another plane than the previous raising, the direction must be given. For example, "Arms fore-upward—raise!" "Side-downward—lower!"—True backward raising is limited as before said, but if we choose to call the oblique raising to a horizontal and thence to a vertical position upward, back-upward, it is subject for its naming to the above rules, as is the lowering back-downward. The lowering of the legs is a much simpler affair. As all leg raisings are limited in degree to less than a right angle, lowering can without intervening exercise take place only in the same plane; it needs, therefore, no mention of direction and if the lowering is to be of the same degree as the raising preceding it, as is usually the case, no degree need be named. "Left leg backward—raise!" "Lower!"—If the left or right arm or leg are raised sideward to their own side, the command need not contain an adverb of direction! "Left leg sideward—raise! (The leg is raised sideward left.) If we wish to have it raised to the opposite side the direction must be given. This may be done by adding right and left to the word sideward, or still better, as left or right are always sideward, simply by the word right or left. "Right leg—left—raise!" From the foregoing we may formulate the following general rules:

1. If a movement be immediately followed by another which is in direction as well as degree its direct and exact reversion the command needs simply contain the verb of reversion.

2. If the movement following immediately another be a reversion in form only, but different in direction, or degree, or both, then the difference in degree, direction, or both, must be expressed by the adverb denoting such direction, degree, or both, accompanying the verb.

Parts held in elevation on other parts may naturally be lowered. Such parts are the head and the trunk. The head may be lowered forward and backward, the reversion movement being then a raising. Anatomically considered the lowering forward is a flexion on the atlo-occipital joint, the lowering backward an extension. Were we, therefore, to follow an anatomical nomenclature we should have to call the lowering forward "bending," the lowering backward "straightening," a good illustration of what I said of the impracticability of nomenclature on anatomical basis. We shall not use the verb "bend" for either, as is sometimes done, for reasons that will become apparent when I shall discuss the use of the verb "to bend" in our nomenclature. As will be explained then, "to bend" will not mean the movement of a part as a whole to a higher or lower plane, but the movement of the component parts of a part upon one another, their doubling up, so to speak. As the head is always used as a whole, "to bend the head" is not made use of in our nomenclature, however much the term may be in popular use. The head can not be lowered sideward without involving the cervical vertebrae more or less in flexion. While for the above reasons we could even now not speak of bending the head sideward, the term "bend the neck" is commonly used so little that though it be a term that is anatomical as well as, according to the rules of our nomenclature, absolutely correct, we shall not make use of it but call these movements of the head lowering sideward left or right, (command: Head left—lower!—Raise!) which is correct as far as the movement of the head is concerned and lets the movement of the neck, as being understood, go without mentioning. We have, therefore, the lowering of the head forward, left, right, and backward. This insures uniformity of terms for apparently like movements.

The trunk can be lowered forward and backward. The latter movement is usually coupled with trunk bending and so little made use of that it may be ignored for practical purposes. Lowering of the trunk sideward without bending the spine is practically impossible. We apply the term "lower" only to the movement of the trunk forward in which the trunk moves with a rigid spine to a lower plane, the movement taking place in the hip joints. This completes the list of the raising and lowering movements of the different parts of the body which we may now profitably tabulate.

	Raise	Lower
Arms	<div style="display: inline-block; vertical-align: middle;"> {forward sideward (left, right)... backward </div>	After being raised.
Legs	do	do
After being lowered {	{Head	{forward. sideward (left and right.) backward.
{	Trunk	forward.

BENDING.

To bend means to curve, to make crooked, to deflect from a normal condition of straightness. The head can, of course, not be bent on itself, and as we have designated its movements on and with the cervical spine as lowering and raising, we shall discard the gymnastic term "bend the head." The trunk may be bent. It can be bent in all four directions, namely: forward, sideward left and right, and backward. When we use the term "bend the trunk" we mean according to the above definition that the trunk as a whole should be curved, should be deflected from its normal condition of straightness. We presuppose the trunk to be relatively straight if considered as a whole. We are not concerned with the fact that the spine of the trunk is curved in two directions, nor do we wish to limit the bending movement to any particular joint or joints. Our command conditions only that the trunk shall be curved in a given direction from its apparent straightness. It does not matter with regard to our command in which region of the spine the movement of joint or joints occurs. It makes no difference under our command whether this movement is accomplished by further curving the spine in a region where it is already curved or by straightening a pre-existing curve or both. We wish to indicate by our command that the trunk is to bend upon itself and that each and every joint which can or must participate in the movement in order that the movement may be produced in the degree and direction given by the command shall be used for the purpose. In a trunk bending forward, for instance, the trunk is curved by bending the spine still more in the dorsal and by straightening it in the lumbar region with as much lowering of the trunk forward, which is a movement in the hip joints, as it is necessary to make the movement of the degree "forward." Likewise are we not satisfied if the command "Trunk backward—bend!" be given with an attempt to straighten the dorsal spine, but we wish the curve in the lumbar region to be increased and a corresponding movement to occur in the hip joint. Our nomenclature allows us to differentiate between the lowering and bending of the trunk, making provision thereby for the use of both movements. All the trunk movements except the forward one are self-limited; the latter is possible in two degrees, namely, "forward" and "fore-downward." The arms being in their usual position in a condition of approximate straightness may be bent from that position. The bending occurs in the elbow joint, and as that joint allows of movement in one plane only no need of signifying the direction of the movement arises; the movement is self-limited. Bending of the arms occurs in raising the arms in certain starting positions, for instance, "Hands on hips—place!" "Arms to thrust—bend!" "Neck—firm!" "Hands on shoulders—place!" etc. The bending being understood, no mention of it is made in the commands; this is good practice, as the bending is, in assuming these positions, not the only movement executed, raising and turning being necessary for the performance of this or that one. All the movements must in such complex moves be held to be of equal importance, and therefore preference is shown for no one by not mentioning any.—

The legs may be bent. The movement takes place in the knee joint, accessory movements are executed in the hip and ankle joint. The command universally used is "Knees—bend!" The movement is possible in one plane and direction only. When standing on all of the foot the movement is self-limited. If the heels be raised the knees may be still further bent. As this complex movement of heel raising and knee bending is often made use of it deserves perhaps of a special command. As it is the degree of the move which makes necessary the heel raising, the latter may be assumed to be included in the command if the degree is given. "Knees deeply—bend!" will serve the purpose. This ends the list of bending which we shall now proceed to tabulate.

Bend	
Trunk	{forward, fore-downward {sideward (left and right), {backward.
Arms	{one direction and only {to starting positions.
Legs	{without heel raising self-limited. {with heel raising "deep." {one direction only.

In the common leg bending, when the feet are on the ground, thigh as well as lower leg are lowered in the movement. When one leg or both are off the ground the leg may be bent so that thigh as well as lower leg are raised. The knee being the most conspicuous part raised forward and a name distinguishing this form of leg bending from the one before mentioned being needed, the name of knee raising has been given the exercise. It is practically possible in one direction only, namely forward, for it is rarely used obliquely forward. It is done in two degrees, namely forward, *i. e.* horizontal (and forward-upward self-limited). Another form of leg bending is accomplished with the raising of the lower leg only, one or both feet being off the ground. The heel being the most conspicuous part raised, the name of heel raising has been bestowed upon this exercise. It is possible in one direction only, namely backward. There are practiced two degrees of it, in the first place backward (horizontal), and back-upward (limit of possibility of movement).

Peculiar leg bending.

Knee raising	Forward Fore-upward
Heel raising	Back Back-upward

STRAIGHTENING.

To straighten is to reduce from a crooked to a straight form. Parts commonly in bent position can be straightened.

The fact of the spine being bent when the trunk is straight has been spoken of before; the slight bend in the arms, when hanging along-side of the body is ignored; they are assumed to be practically straight and the arms, when lowered, assume this position. This bend, however, disappears on the command: "Downward straighten or thrust!"

The only part held usually in bent position is the foot. It may, therefore, be extended. When standing on both feet the straightening of the feet amounts to a rising of the toes. So the command usually employed is: "On toes—rise!" or as the heels are raised from the floor: "Heels—raise!" The last command is apt to be mistaken for: "Heels backward—raise!" and the first, therefore, deserves preference. If one or both feet are off the floor the straightening of the foot or feet does not raise the body nor is the heel raising very apparent. The command is then: "Straighten the foot! (ankle.)"—The spine is bent under common circumstances. It may be straightened. The movement is so small, its effect so little apparent, localization in one of the regions so difficult that no formal exercise is had under this name. As a general admonition the command: "Straighten the spine!" may, of course, be given.—Parts bent by a previous exercise may be straightened. The arms, the legs, the trunk, can be straightened after having been bent. The commands for the trunk and leg movements are simple, namely, "Knees (knees)—straighten!" "Trunk—straighten!" The commands of the arm straightenings are a little more complicated. When the arms, in assuming a starting position, have been bent, as for example in: "Hands on hips—place!" or "Hands on shoulders—place!" the movements usually done under the name of straightening are not pure straightening but are made up of straightening the elbow and raising, lowering, abducting or adducting the upper arm as well as rotation of the forearm. Only this participation of other parts makes it possible to apparently straighten the arm in different directions, for, as we have seen, bending and straightening of the arm is possible only in one direction. It is, however, common usage to name these complex exercises straightening forward, upward, downward. The commands are: "Arms forward—straighten!", etc. The same complexity of movement is present when, after the arm is bent for thrust, the straightening and all the movements above mentioned are forcibly executed while the hand remains clenched as a fist, the movement is then called "thrust." This movement, like the foregoing, is apparently possible in different directions. Command: "Arms forward—thrust!" etc.

Tabulated, the straightening exercises are as follows:

Straightening	
Ankle	one direction and degree only.
Leg	after being bent.
Trunk	after being bent.
Arms	after being bent in the several starting positions forward, sideward, upward, downward.

TURNING.

Turning means to revolve around an axis. All parts of the body may be so revolved. The head may be turned around a longitudinal axis left and right, the movements are self-limited. The trunk can likewise be turned left and right, its movements are self-limited. The arms can be turned left or right when vertically downward or upward and, when raised, forward; the turning is called backward and forward when the arms have been raised sideward. In the arm turning the forearm as well as the upper arm take part; the movements are self-limited. The legs can be turned left and right. The movements are self-limited. The commands are: "Head left—turn!", "Return!", etc. When both legs are turned at the same time so that the left leg is turned right while the right leg is turned left, the usual command is formed from the effect produced, namely: "Feet—open!", the opposite move being called "Feet—close!"

	Turn	
Head	{	left
Trunk		right
Legs		
		} self-limited.
Arms	{	Left (right) when held at side or after being raised forward or upward, forward and backward after being raised sideward.

CARRYING.

TO CARRY, TO CONVEY FROM A STARTING POINT.

Gymnastically we call carrying the moving of a part through a horizontal plane. During all these movements the weight of the part is borne, and likewise does carrying mean, in our case, the conveying from a starting point, in as much as all carrying must be done from a starting position. In order to allow a part to be carried through a horizontal plane the part must be placed in a horizontal position to begin with, or at least in a position which will permit a rotary movement other than around the long axis of the part. In the case of the arms it becomes necessary to raise them forward or sideward when they may be carried sideward and forward respectively. The trunk can be placed in a position from which carrying is possible by bending forward or by lowering forward, whence it can be carried sideward left and right. The leg may be carried, after being raised forward, sideward or backward, or, being placed in the same directions, the carrying being sideward, forward or backward and sideward after each one of the raisings and in the order above given. The head can not assume a position which will make carrying possible.

	Carrying.		
	Starting position	carry	}
Arms	raised forward	sideward	
"	raised sideward	forward	
Trunk	bent forward	sideward left and right	
"	lowered forward	" " " "	
Leg	raised { forward	" " " "	
	or { sideward	forward, backward	
	placed { backward	sideward left and right	

STEPPING PHASES.

One of the difficulties of gymnastic nomenclature is the proper designation of the various phases of stepping. The great confusion existing on this point needs to be abolished.

We shall consider three phases of walking and stepping, namely, foot placing, striding and stepping.

A "foot placing" is a movement of raising the leg in any one direction (forward, sideward, backward, or obliquely) and placing the straight leg in such position that the ball of the foot touch the ground, the length of the leg determining the distance which is to intervene between the feet. In this movement no transfer of the weight of the body takes place, therefore the term foot placing, inasmuch as only the foot is placed away from its former standpoint, the weight of the body remaining unaltered in its former position. The movement is then what the command says it to be: the placing of the foot, and the foot only, forward or in any other direction indicated by the command. The command is inclusive, it includes the foot in the movement commanded, it is exclusive by the same device, excluding any other part of the body from partaking in the movement.

The second phase of stepping is had when, after the foot having been raised in any direction, the body weight is transferred and the foot placed so as to distribute the weight of the body equally between the legs. It may be taken forward, backward or sideward. The degree of the stride may be different. Only one condition attaches to striding, namely, that the weight of the body be equally distributed over both feet. This conception of the term stride is at variance with the definition of stride found in most encyclopedias and dictionaries which declare a stride to be a large step. While admitting that this may have become popularly the idea of a stride I must insist that this manner of using the word stride is wrong, especially if used in a gymnastic sense. The usage of the words "*astride*" and "*bestride*" in English indicates that the movement of striding brings the body in a position wherein the weight of the body rests on the lower extremities or even on the pelvis, so that the weight is equally distributed between the two supporting points or surfaces. A man standing "*astride*" stands so that, his legs having been abducted sideward, the body rests with the center of gravity falling in line midway between the two legs. If a man sits *astride* on a horse or on a chair the conception of sitting *astride* is that he sits on both buttocks with the weight equally distributed between both of them.

To *bestride* a horse means to get into a position of sitting *astride* of it. I hold, therefore, that the stride should mean gymnastically, if no longer popularly, to move the leg in a position that transfers the weight so that it is equally distributed. This will be the way in which we shall use the word stride. Stride meaning, therefore, not only a movement of the leg but of the whole body and being a movement peculiar in itself we use the verb stride as an intransitive one and say, therefore, "Left forward—stride!" "Left sideward—stride!" "Left backward—

stride!" and not: "Stride the left foot forward and backward!", which is wrong in our conception of the word and wrong grammatically.

The first and final phase in stepping is the "step" itself. In conformity with the gymnastic usage of the term step in gymnastic tactics we wish to indicate by the term step a leg movement, a leg raising and subsequent placing on the ground in any direction and the transfer of the weight of the body in the same direction and upon the stepping foot in such a manner that as the foot is placed all of the weight of the body is transferred on the stepping foot. The position of the foot not concerned in the movement under the command differs in free gymnastics and tactics. In tactics, if the command be given, "One step forward—march!" the left foot having performed a movement as above indicated, the right is usually closed to it, transferring the body in its totality forward. In free gymnastics, if the command be given, "Left forward—step!" it means that the left foot is to move as above described, the right foot retaining its place; the complete transfer of the weight of the moving foot, however, makes it possible to raise the foot itself so far off the ground that the ball of the right foot only touches the ground as the left foot comes to the ground and stays so. This stationary leg is kept straight in the knee.

We have, therefore, in short, these three stepping phases: 1) Foot placing: a leg raising and placing of the foot on the ground with the ball of the foot, without any transfer of body weight. 2) The stride: a raising of the leg and placing of the foot with the transfer of half of the body weight on the moving foot and leg. 3) The step: the moving of a leg and foot in any direction with a complete transfer of weight on the moving foot, the stationary one touching the ground simply with the ball of the foot. The commands: "Left foot forward—place!" "Left sideward—stride!" "Right backward—step!"

As a counter-command to all three movements, namely, the foot placing, the striding, and stepping, we use the term "replace." This would seem at variance with the rule that led us to establish the terms foot placing, stride and step, but this variance is only apparent, not real. If a foot placing has been taken and the command is given: "Replace!" the term will go without objection. If, however, we have had the command "Left sideward—stride!" and the term "Replace!" is used, it may appear as if the command referred only to the foot and leg; it is at once clear, however, that a replacing from astride will have to include the movement back to its original place of the body. The same is true of a replacing after a stepping movement. The counter-command will, therefore, be: "Replace!" It is not even necessary to mention which foot is to be replaced, as replace will limit the movement to that foot which had executed the placing, striding or stepping. Should we wish to have the stationary foot proceed to the standpoint we should use the command in this manner: "Left forward—stride! Right foot to left—close!" This command is equally applicable to the closing of the stationary foot in foot placing, striding and stepping.

STEPPING PHASES IN COMBINATION WITH KNEE-BENDING.

If at the same time that one of the before mentioned stepping movements is taken, the bending of one or both knees occur we have a combination of leg exercises which have been much used in gymnastic practice and especially in free gymnastics and that applied form of free gymnastics with hand apparatus known as fencing in its various forms. The terminology of these exercises has up to this time been likewise very unsatisfactory. I cannot suggest any new names for these exercises, but if a close adherence to the terminology of other free gymnastic exercises is wished for and desirable, one may designate them in this way:

1) Foot placing with bending of the knee of the stationary leg. This may be commanded in this manner: "Bend right knee and left foot forward—place!" This way of naming the movement is, of course, descriptive and plain enough, it lacks perhaps the desired shortness of a command. We may, therefore, use the fencing terminology which calls this a lay-out, the command "Left forward lay—out!" This term has been much used in fencing and also in the gymnastic nomenclature of the Germans.

2) Astride with bending both knees. Command: "Bend knees and left sideward—stride!" This movement corresponds somewhat to the "on guard" in fencing; an appropriate fencing term, however, cannot be used in gymnastic terminology, and I can propose no short term for it, except the new ones hereafter mentioned, which on account of their novelty do not sound quite right even to me.

3) The step with the bending of the knee of the stepping leg. This is a movement much used in gymnastics, but especially in fencing, and is the "lunge" or "fall-out." The command may then be the gymnastic term "Bend left knee and left forward—step!" or then "Left forward—lunge!", or again "Left forward fall—out!" Uniformity of nomenclature may here be obtained by naming the three moments like this, the first one "place-out," the second one "stride-out," and the last one "step-out."

But as these terms are arbitrary and not descriptive, in which they are, however, no worse than fall-out or lay-out, I am rather doubtful whether they will supersede the terms now in use.

I suggest, therefore, in the first place the strict gymnastic terms "Bend knee and foot—place!", "Bend knees and—stride!", "Bend knee and—step!" While lengthy, they are descriptive.

Further the terms "lay-out" and "fall-out," which need everlasting explanation to classes, lack the form for the stride with the bending of both knees and are not strictly carried out, as witness the Swedish fall-out backward, which is a movement of altogether a different type than their fall-out forward, it being a lay-out backward according to our terminology, having none of the features of the fall-out. From all these considerations I incline strongly to the use of the lengthy gymnastic terminology rather than to that of fencing. Brevity here, moreover, has this further drawback that it does not allow us to use the imperative form of the verb for the executive command, which is

according to our rules always desirable. I should, therefore, still prefer to carry out the full command and leave the abbreviation to itself.

The counter-command for the above movements we shall formulate analogous to the one employed in the single stepping phases without knee-bending. We have then the term "replace." If we follow the analogy of the command replace for stride and step we shall come to the conclusion that inasmuch as in striding and stepping the term replace means: to replace not only the foot but also the rest of the body that in the movement of striding and stepping has been displaced, so the term replace after a lay-out, stride-out or fall-out should mean: to replace not only the foot which executed the movement and not only to replace the body weight which has been transferred, that is, all the body in the fall-out and stride-out, but it should also mean: to replace the bent knee into a straightened position. So the term replace is quite sufficient to reverse our movement. Should one wish, however, to make the term more descriptive, there is no reason why it could not be given in the following manner. After the fall-out, for instance, "Straighten the knee and—replace!", or still lengthier, "Straighten left knee, left foot—replace!" In most cases, however, the lengthening of the command will be found unnecessary.

The terminology of exercises done in certain positions or from a certain starting position offers no difficulty at all. The command for the starting position is given, the position assumed, then the command for the exercise is given, the exercise is stopped by the proper counter-command when the proper counter-command is given to that movement which made the gymnast assume the starting position from which the exercise was done. For example: "Hands on hips—place!" "Left sideward—stride!" (starting position), "Trunk forward—bend!" "Straighten—by counts begin: One, two, one, two, etc. Halt!" "Replace, arms—lower!"

Neither do sequences prove an obstacle to the carrying out of our scheme of terminology. The exercises are simply named in the order in which they follow. For instance: "Left sideward—stride!" "Arms sideward—raise!" "Lower—Replace! By counts—begin: One, two, three, four, etc. Halt!"

Shortness of command may here sometimes be attained if circumstances are favorable. This is the case if the movements of arms and legs are of the same type and proceed in the same direction, as: "Left leg sideward—raise!—The arm!" "Lower the arm,—the leg!"

In this manner the repetition of the verb of the movement and the adverb for the direction is made unnecessary. If movements of the same form occur which, however, proceed in different directions, one still may shorten the command by not reiterating the verb, but simply giving the adverb of direction, as for instance: "Trunk forward—lower!" "Head—backward!" "Trunk—raise! the head!"

The terminology of combination exercises offers nothing new, for we reemploy all the old terms. We must endeavor to bring into system the order in which the commands for the movements of the several parts entering into the combination movement follow. We here make the rule that the commands should follow in this order: head, arm,

trunk and leg movement, using the verb of the leg movement, or whichever of the movements is the last one in the combination, as the executive command for performing the whole combination, thus: "Raise arms forward and left sideward—step!" "Turn head left and trunk forward—bend!"

Our endeavor to abbreviate the command here is restricted to such combinations wherein the exercises being of the same form, or proceeding in the same direction, allow us to use only one verb or one adverb of direction in the whole command. Thus for instance: "Arm and left leg sideward—raise!" "Head backward, trunk forward—lower!" "Arms and knees—bend!", etc. When form and direction differ it is best to give them in detail as the explanation necessary in a too much abbreviated command will make the abbreviation no saving of time in the end.

In a sequence of exercises we place the verb in the position in the sentence in which it would serve as executive command, i. e., at the end of the sentence. In combinations we reverse the order: We here place the verb at the beginning of the sentence so that it may not be mistaken for the executive command, by the use of the word "and" we coordinate all the following parts of the command as to the time, using the verb first in all the part-commands till we arrive at the final one when we use the verb as executive command and, therefore, put it last in our sentence. For example: Raise arms sideward, bend trunk forward, turn head left and left foot backward—place!



In position—stand!



RAISING AND LOWERING.

HEAD LOWERING AND RAISING.

1. Head forward—lower! Raise!.....(Fig. 1.)
2. Head left—lower! Raise!.....(Fig. 2.)
3. Head backward—lower! Raise!.....(Fig. 3.)

ARM RAISING AND LOWERING.

1. Arms forward—raise! Lower!.....(Fig. 4.)
2. Arms sideward—raise! Lower!.....(Fig. 5.)
3. Arms left—raise! Lower!.....(Fig. 6.)



4. Arms backward—raise! Lower!.....(Fig. 7.)
5. Arms fore-upward—raise! Lower!.....(Fig. 8.)
6. Arms side-upward—raise! Lower!.....(Fig. 9.)
7. Arms obliquely fore-downward—raise! Lower!.....(Fig. 10.)
8. Arms obliquely fore-upward—raise! Lower!.....(Fig. 11.)
9. Arms obliquely side-downward—raise! Lower!.....(Fig. 12.)
10. Arms obliquely side-upward—raise! Lower!.....(Fig. 13.)
11. Arms obliquely fore-side-downward—raise! Lower!.....(Fig. 14.)
12. Arms obliquely fore-side-upward—raise! Lower!.....(Fig. 15.)



LEG RAISING AND LOWERING.

1. Left leg forward—raise! Lower!.....(Fig. 16.)
2. Left leg left—raise! Lower!.....(Fig. 17.)
3. Left leg backward—raise! Lower!.....(Fig. 18.)
4. Left leg right—raise! Lower!.....(Fig. 19.)

(This is better demonstrated in a free hang with other leg raised forward.)

TRUNK LOWERING AND RAISING.

1. Trunk forward—lower! Raise!.....(Fig. 20.)

BENDING AND STRAIGHTENING,

ARM BENDING AND STRAIGHTENING.

- | | | |
|---|---|--|
| <ol style="list-style-type: none"> 1. Arm for thrust—bend!.....(Fig. 21.) 2. Hands on hips—place!.....(Fig. 22.) 3. Hands on shoulders—place!.....(Fig. 23.) 4. Arms forward—fold!.....(Fig. 24.) | } | Arm bending into starting
position from which
straightening (2—6) or
thrusting (1) is done. |
|---|---|--|



5. Arms backward—fold!..... (Fig. 25.) } Arm bending into starting positions
 6. Neck—firm!.....(Fig. 26.) } from which straightening (2—6)
 7. Forward—thrust! Bend!..... (Fig. 27.) } or thrusting (1) is done.
 8. Arms sideward—straighten! Bend!..... (Fig. 28.)
 9. Arms upward—straighten! Bend!..... (Fig. 29.)
 10. Arms downward—straighten! Bend!..... (Fig. 30.)

LEG BENDING AND STRAIGHTENING.

1. Knees—bend! Straighten!..... (Fig. 31.)
 2. Left knee forward—raise! Lower!..... (Fig. 32.)
 3. Right knee fore-upward—raise! Lower!..... (Fig. 33.)



4. Left heel backward—raise! Lower!.....(Fig. 34.)
 5. Left heel back-upward—raise! Lower!.....(Fig. 35.)

ANKLE STRAIGHTENING AND BENDING.

1. Heels—raise! Lower!.....(Fig. 36.)

TRUNK BENDING AND STRAIGHTENING.

1. Trunk forward—bend! Straighten!.....(Fig. 37.)
 2. Trunk right—bend! Straighten!.....(Fig. 38.)
 3. Trunk backward—bend! Straighten!.....(Fig. 39.)
 4. Trunk fore-downward—bend! Straighten!.....(Fig. 40.)

TURNING.

HEAD.

1. Head left—turn! Return!.....(Fig. 41.)

TRUNK.

1. Trunk left—turn! Return!.....(Fig. 42.)



LEG.

1. Left leg left—turn! Return!.....(Fig. 43.)
2. Feet—close! Open!.....(Fig. 44.)

ARMS.

- (After being raised sideward.)
1. Arms forward—turn! Return!.....(Fig. 45.)
 2. Arms backward—turn! Return!.....(Fig. 46.)
- (After being raised forward.)
4. Arms left—turn! Return!.....(Fig. 47.)

CARRYING.—ARMS.

- (After being raised forward.)
1. Arms sideward—carry! Recarry, or forward—carry!.....(Fig. 48.)
 2. Arms left—carry! Recarry!.....(Fig. 49.)
- (After being raised sideward.)
3. Arms forward—carry! Recarry, or sideward—carry!.....(Fig. 50.)
- (After being raised left)
4. Arms forward—carry! Recarry, or Left—carry!.....(Fig. 51.)



TRUNK.

(After being bent or lowered forward.)

- 5. Trunk forward—bend or lower!.....(Fig. 52.)
- 6. Trunk left—carry! Recarry, or forward—carry!.....(Fig. 53.)

LEG.

(After being raised or placed forward.)

- 1. Left leg left or sideward—carry! Recarry, or forward—carry!.....(Fig. 54.)
- (After being placed or raised sideward left.)
- 2. Left leg forward—carry! Recarry, or left—carry!.....(Fig. 55.)
- 3. Left leg backward—carry! Recarry, or left—carry!.....(Fig. 56.)
- (After being placed or raised backward.)
- 4. Left leg left—carry! Recarry, or backward—carry!.....(Fig. 57.)

STEPPING PHASES.—FOOT PLACING.

- 1. Left foot forward—place! Replace!.....(Fig. 58.)
- 2. Left foot sideward—place! Replace!.....(Fig. 59.)
- 3. Left foot backward—place! Replace!.....(Fig. 60.)



STRIDING.

1. Left forward—stride! Replace!.....(Fig. 61.)
2. Left sideward—stride! Replace!.....(Fig. 62.)
3. Left backward—stride!.....(Fig. 63.)

STEPPING.

1. Left forward—step! Replace!.....(Fig. 64.)
2. Left sideward—step! Replace!.....(Fig. 65.)
3. Left backward—step! Replace!.....(Fig. 66.)

LAY-OUT.

1. Bend right knee and left foot forward—place! Replace!.....(Fig. 67.)
2. Bend right knee and left foot sideward—place! Replace!.....(Fig. 68.)
3. Bend right knee and left foot backward—place! Replace!.....(Fig. 69.)



STRIDE-OUT.

1. Bend knees and left forward—stride! Replace!.....(Fig. 70.)
2. Bend knees and left sideward—stride! Replace!.....(Fig. 71.)
3. Bend knees and left backward—stride! Replace!.....(Fig. 72.)

FALL-OUT, STEP-OUT, LUNGE.

1. Bend (left) knee and left forward—step! Replace!..... (Fig. 73.)
2. Bend (left) knee and left sideward—step! Replace!.....(Fig. 74.)
3. Bend (left) knee and left backward—step! Replace!.....(Fig. 75.)



